

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P73

An atmospheric pressure of 15 psia approximately equals...

- A. 30.0 psig.
- B. 29.4 psig.
- C. 14.7 psig.
- D. 0.0 psig.

ANSWER: D.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P273

A pressure gauge on a condenser reads 27 inches of mercury (Hg) vacuum. What is the absolute pressure corresponding to this vacuum? (Assume an atmospheric pressure of 15 psia.)

- A. 14.0 psia
- B. 13.5 psia
- C. 1.5 psia
- D. 1.0 psia

ANSWER: C.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P473

Assuming a standard atmospheric pressure of 15 psia, 5 inches of mercury (Hg) vacuum is equivalent to...

- A. 2.5 psia.
- B. 5.0 psia.
- C. 10.0 psia.
- D. 12.5 psia.

ANSWER: D.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P873

If a main steam line pressure gauge reads 900 psig, what is the absolute pressure?

- A. 870 psia
- B. 885 psia
- C. 915 psia
- D. 930 psia

ANSWER: C.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P1173

Which one of the following is equivalent to 5 psia?

- A. 20 psig
- B. 10 psig
- C. 10 inches of mercury (Hg) vacuum
- D. 20 inches of mercury (Hg) vacuum

ANSWER: D.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P1273

Which one of the following is sequenced from lowest pressure to highest pressure?

- A. 8 psia, 20 inches Hg absolute, 2 psig
- B. 8 psia, 2 psig, 20 inches Hg absolute
- C. 20 inches Hg absolute, 2 psig, 8 psia
- D. 20 inches Hg absolute, 8 psia, 2 psig

ANSWER: A.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P1573

Which one of the following is arranged from the highest pressure to the lowest pressure?

- A. 2 psig, 20 inches Hg absolute, 8 psia
- B. 2 psig, 8 psia, 20 inches Hg absolute
- C. 8 psia, 20 inches Hg absolute, 2 psig
- D. 8 psia, 2 psig, 20 inches Hg absolute

ANSWER: A.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P1773

Which one of the following is approximately equivalent to 2 psig?

- A. 11 psia
- B. 13 psia
- C. 15 psia
- D. 17 psia

ANSWER: D.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P2073

Which one of the following is arranged from the lowest pressure to the highest pressure?

- A. 2 psig, 12 inches Hg absolute, 8 psia
- B. 2 psig, 18 inches Hg absolute, 8 psia
- C. 12 psia, 20 inches Hg absolute, 2 psig
- D. 12 psia, 30 inches Hg absolute, 2 psig

ANSWER: D.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P2173

Which one of the following is the approximate condenser vacuum when condenser pressure is 16 inches Hg absolute?

- A. 4 inches Hg vacuum
- B. 8 inches Hg vacuum
- C. 12 inches Hg vacuum
- D. 14 inches Hg vacuum

ANSWER: D.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P2273

Which one of the following is arranged from the highest pressure to the lowest pressure?

- A. 2 psig, 12 inches Hg absolute, 8 psia
- B. 2 psig, 18 inches Hg absolute, 8 psia
- C. 12 psia, 20 inches Hg absolute, 2 psig
- D. 12 psia, 30 inches Hg absolute, 2 psig

ANSWER: B.

TOPIC: 193001  
KNOWLEDGE: K1.01 [2.5/2.7]  
QID: P2773

Which one of the following is arranged from the highest pressure to the lowest pressure?

- A. 2 psig, 12 inches Hg absolute, 8 psia
- B. 2 psig, 18 inches Hg absolute, 8 psia
- C. 12 psia, 20 inches Hg absolute, 2 psig
- D. 12 psia, 30 inches Hg absolute, 2 psig

ANSWER: B.

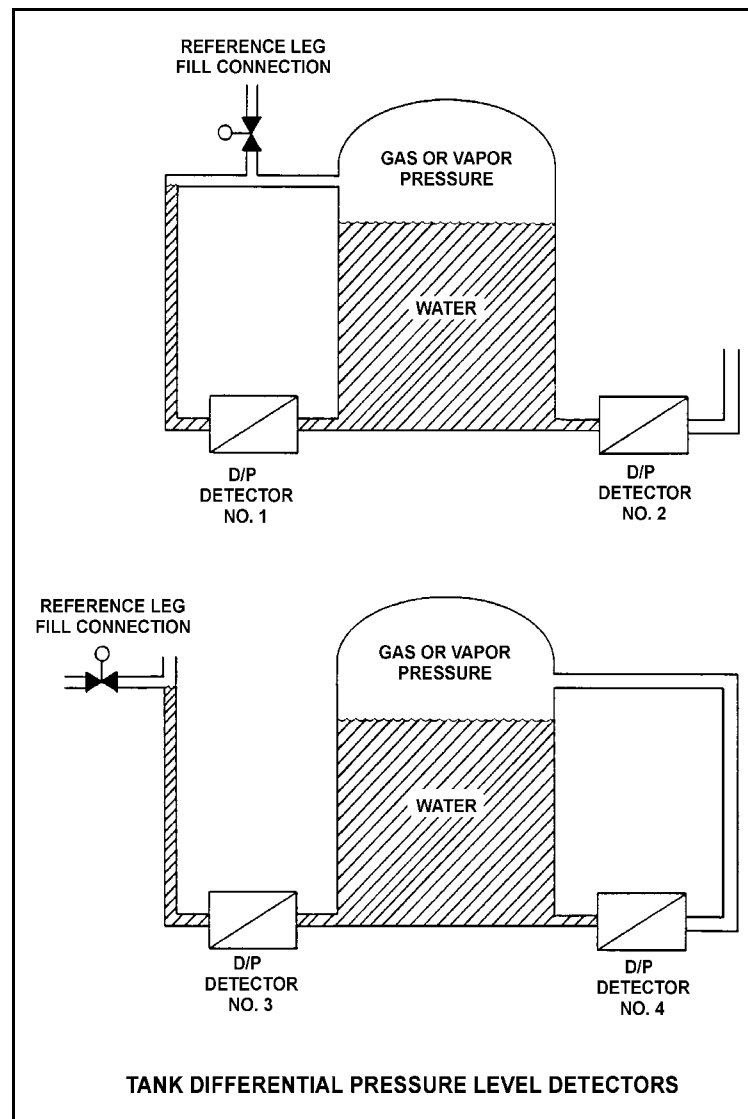
TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P374 (B373)

Refer to the drawing of four differential pressure (D/P) level detectors (see figure below).

The tanks are identical and are being maintained at 17 psia and 50% water level. They are surrounded by atmospheric pressure. Which one of the level detectors will sense the greatest D/P?

- A. 1
- B. 2
- C. 3
- D. 4

ANSWER: B.



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P573 (B1973)

A water storage tank is enclosed to prevent vapors from escaping to the environment. The tank is also pressurized to prevent boiling. A differential pressure detector with a dry reference leg is used to measure the tank level.

To achieve the greatest accuracy of measurement, the low pressure side of the detector should sense which one of the following?

- A. The pressure at the bottom of the tank
- B. The pressure of the atmosphere surrounding the tank
- C. The pressure of a column of water external to the tank
- D. The pressure of the vapor space at the top of the tank

ANSWER: D.



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P709 (B710)

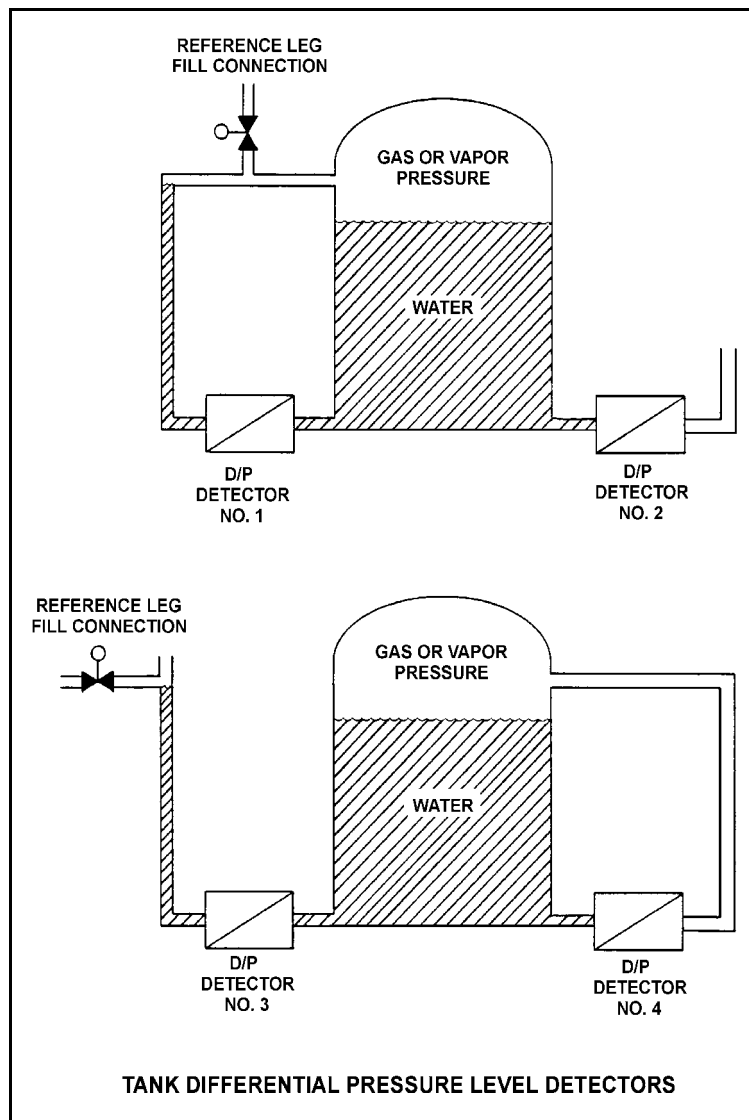
Refer to the drawing of four differential pressure (D/P) level detectors (see figure below).

The tanks are identical and are being maintained at 17 psia and 70% water level (calibration conditions). They are contained in a building that is open to atmospheric pressure.

Which of the level detectors will provide the lowest level indication if atmospheric pressure decreases?

- A. 1 and 3
- B. 1 and 4
- C. 2 and 3
- D. 2 and 4

ANSWER: B.



QID: P1673 (B1174)

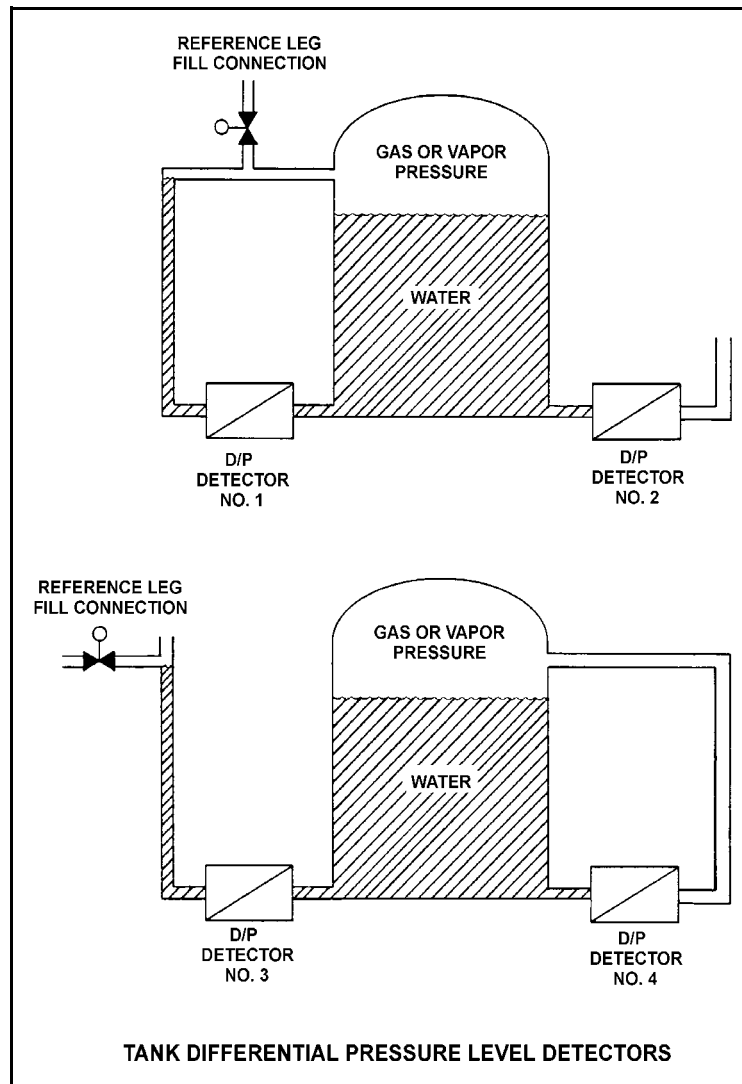
Refer to the drawing of four identical tank differential pressure (D/P) level detectors (see figure below).

The tanks are identical and are presently at 2 psig overpressure, the same constant water level, and a temperature of 60°F. They are surrounded by atmospheric pressure. All level detectors have been calibrated and are producing the same level indication. A leak in the top of each tank causes a complete loss of overpressure in both tanks.

Which level detector(s) will produce the lowest level indication?

- ### D. No. 2 and 3

ANSWER: D.



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P2373 (B2373)

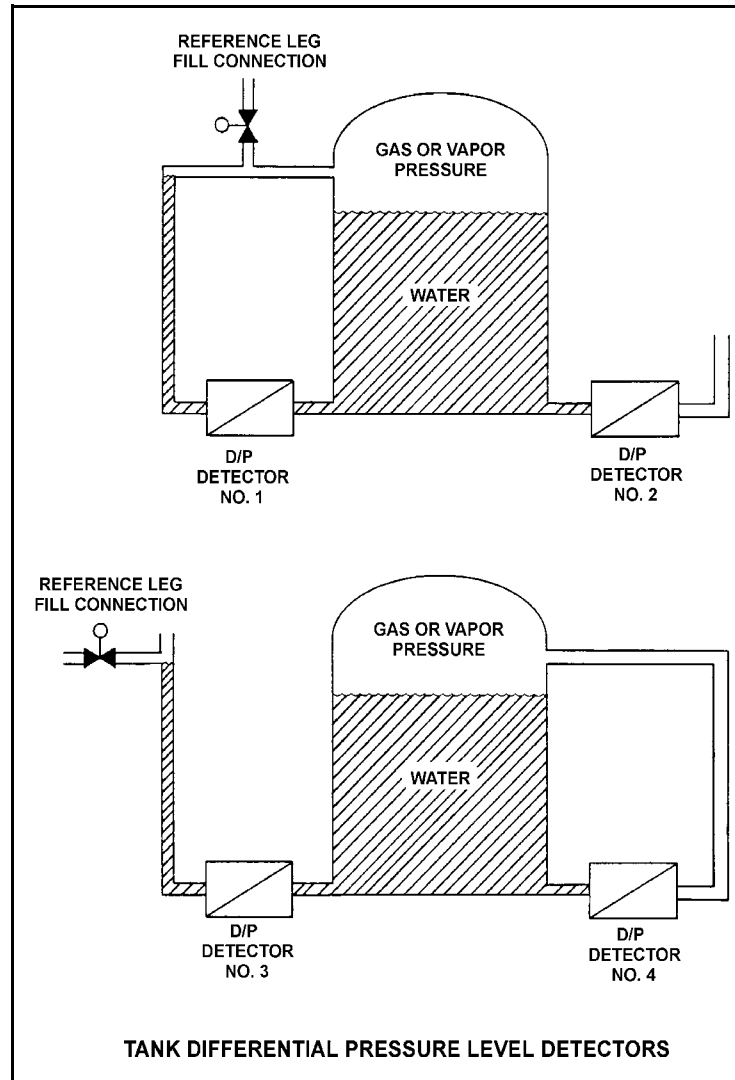
Refer to the drawing of four identical tank differential pressure level detectors (see figure on next page).

The tanks are identical and they are presently at 2 psig overpressure, 60°F, and the same constant water level. They are located within a sealed containment structure that is being maintained at atmospheric pressure. All level detectors have been calibrated and are producing the same level indication. A ventilation malfunction causes containment structure pressure to decrease to 12 psia.

Which level detectors will produce the lowest level indication?

- A. 1 and 2
- B. 3 and 4
- C. 1 and 4
- D. 2 and 3

ANSWER: C



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P2574 (B2573)

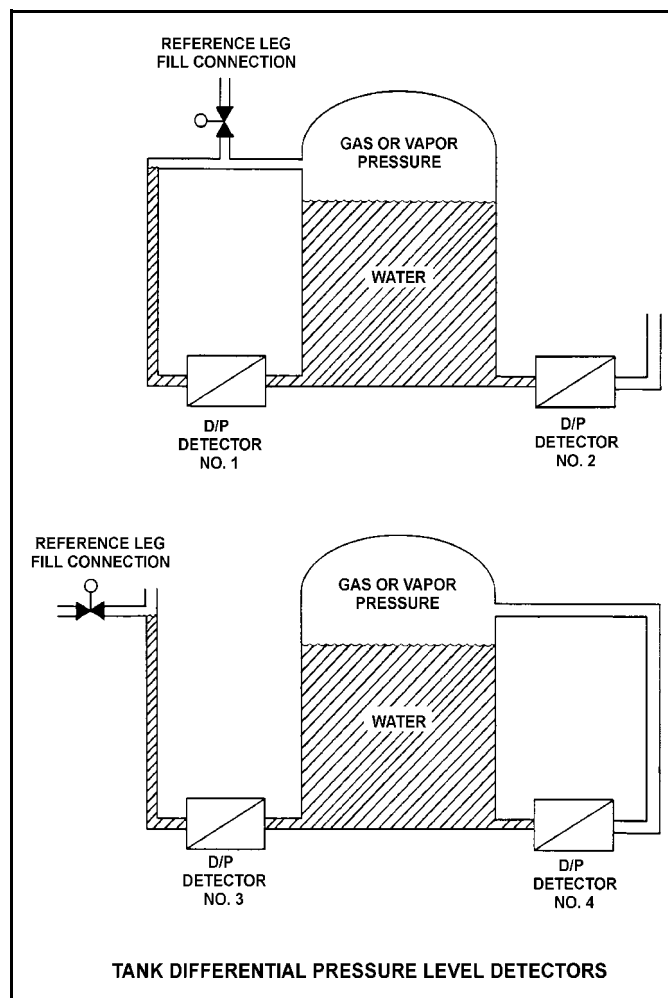
Refer to the drawing of four identical tank differential pressure level detectors (see figure on next page).

The tanks are identical and they are presently at 2 psig overpressure, 60°F, and the same constant water level. They are located within a sealed containment structure that is being maintained at atmospheric pressure. All level detectors have been calibrated and are producing the same level indication. A ventilation malfunction causes containment structure pressure to decrease to 13 psia.

Which level detectors will produce the highest indication?

- A. 1 and 2
- B. 3 and 4
- C. 1 and 4
- D. 2 and 3

ANSWER: D.



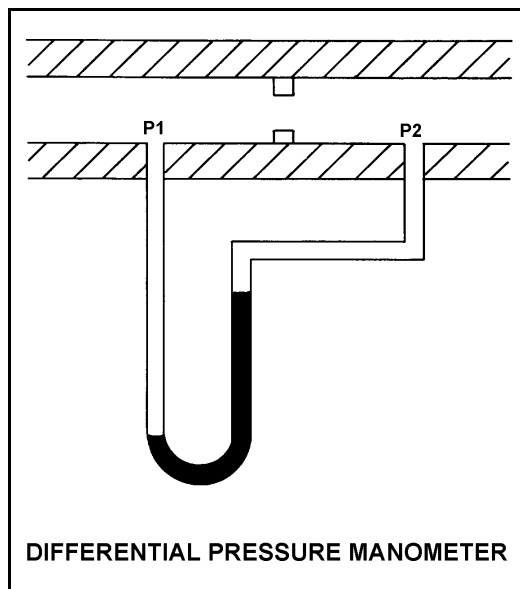
TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P2673 (B73)

Refer to the drawing of a differential pressure manometer (see figure below).

A differential pressure manometer is installed across an orifice in a ventilation duct. With the ventilation conditions as shown, the pressure at P1 is \_\_\_\_\_ than P2, and airflow is from \_\_\_\_\_.

- A. greater; left to right
- B. greater; right to left
- C. less; left to right
- D. less; right to left

ANSWER: A.



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P2873 (B1073)

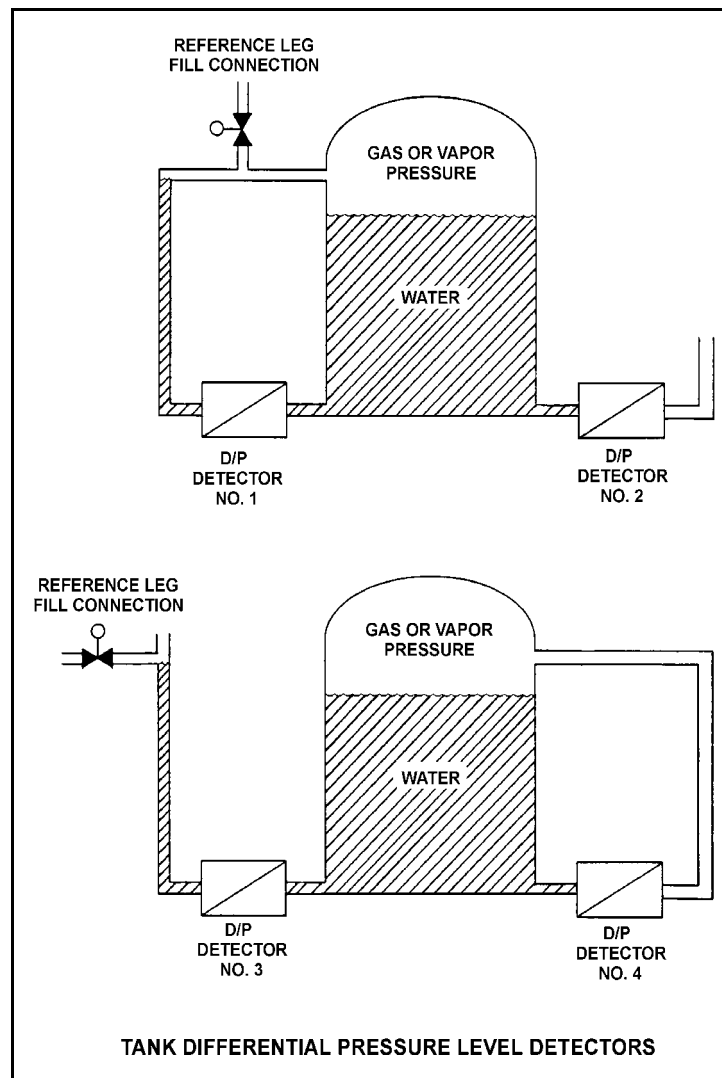
Refer to the drawing of four differential pressure level detectors (see figure below).

The tanks are identical and are being maintained at 30 psia with a water level of 20 feet. They are surrounded by standard atmospheric pressure. The water temperatures in the tanks and reference legs are the same.

If each detector experiences a ruptured diaphragm, which detector(s) will cause indicated tank level to decrease? (Assume actual tank water level remains constant.)

- A. No. 1 only
- B. No. 2 only
- C. No. 1, 2, and 3
- D. No. 2, 3, and 4

ANSWER: D.



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P2973 (B673)

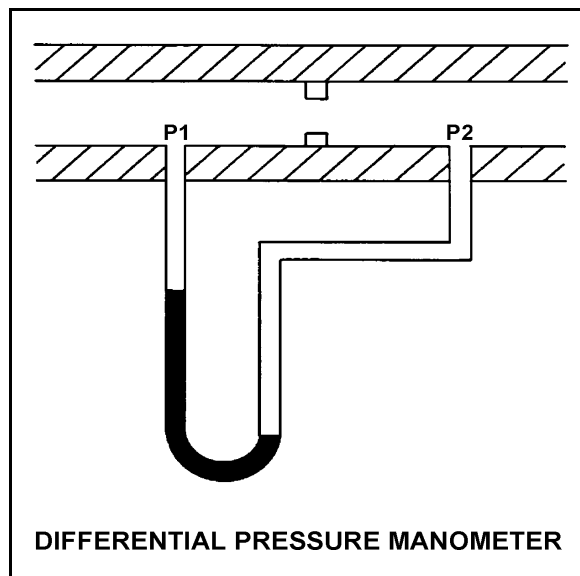
Refer to the drawing of a differential pressure manometer (see figure below).

A differential pressure manometer containing water is installed across an orifice in a ventilation duct to determine the direction of airflow. P1 and P2 are pressures sensed in the ventilation duct.

With the conditions shown in the drawing, P1 pressure is \_\_\_\_\_ than P2 pressure, and airflow is to the \_\_\_\_\_.

- A. less; left
- B. less; right
- C. greater; left
- D. greater; right

ANSWER: A.



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P3173 (B3173)

A water storage tank is vented to atmosphere. The tank is located at sea level and contains 100,000 gallons of 80°F water. A pressure gauge at the bottom of the tank reads 5.6 psig. What is the approximate water level in the tank?

- A. 13 feet
- B. 17 feet
- C. 21 feet
- D. 25 feet

ANSWER: A.



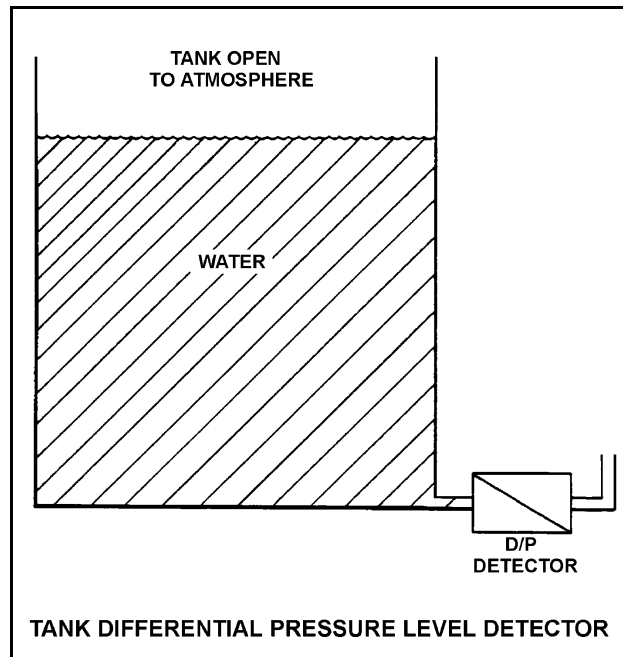
TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P3673 (B3673)

Refer to the drawing of a tank with a differential pressure (D/P) level detector (see figure below).

If the tank contains 30 feet of water at 60°F, what is the approximate D/P sensed by the detector?

- A. 2 psid
- B. 13 psid
- C. 20 psid
- D. 28 psid

ANSWER: B.



TOPIC: 193001  
KNOWLEDGE: K1.03 [2.6/2.6]  
QID: P3873 (B3873)

A water storage tank is vented to atmosphere. The tank is located at sea level and contains 100,000 gallons of water at 80°F. A pressure gauge at the bottom of the tank reads 7.3 psig. What is the approximate water level in the tank?

- A. 13 feet
- B. 17 feet
- C. 21 feet
- D. 25 feet

ANSWER: B.